

PCT/EG 03/00009



Arab Republic of Egypt  
Ministry of State for Scientific Research  
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Patent Office

C.18  
18/19

**To Whom It May Concern**

The Chief of the Patent Office certifies that **Wael Mohamed Nabil Lotfe**  
Address : 43 GIZA ST.- GIZA - ARAB REPUBLIC OF EGYPT  
has filed application No.947 on 24/09/2003 to obtain a patent for an invention titled :  
**VALVED BALLOON STENT**

This Document was given to him upon his request,

Dated 20/12/2003 Coupon No.987578

REC'D 07 JAN 2004

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*Prof. Dr. Fawzi A. Elrefaie*  
Dec 29, 2003

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President,  
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**PATENT OFFICE**

This is translation application No.947/2003 filed on 7/12/2003

The full description

(4/1) The previous art:

For the purpose of reducing the flow and amount of blood towards specific organ, in as much as girding the artery, it is commonly adhered to operate a surgery and tolerate all its risks and complications.

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**PATENT OFFICE**

**(4/2) The problems and deficiencies in the previous art:**

- 1- A high-cost surgical operation, with its concomitant risks and problems, is necessarily required.
- 2- Lacking flexibility regarding the extent of girdling the artery {i.e. being unable to change and control the required intensity of girdling without the need to performing another surgery}
- 3- Sometimes, the patient's condition cannot stand performing a surgery.



التحسينات  
خروجها

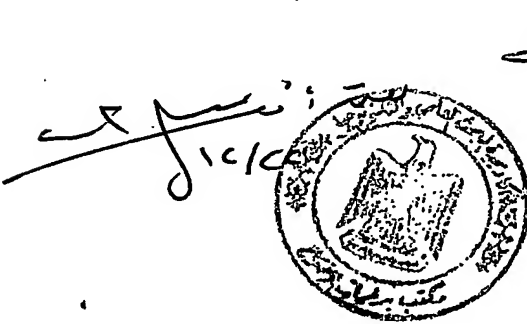
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**PATENT OFFICE**

**(4/3) The new in the related invention:**

- \* Accomplishing the same results of the surgical operation via using interventional catheter.
- \* The potentiality of changing the degree of the formed stenosis inside the blood vessel, after applying the catheter, is one of the characteristics of the relevant technique.
- \* This technique also provides the possibility of evaluating the impact of the stent on the heart during the process of securing it inside the heart.
- \* Avoiding the risks and complications of the surgery
- \* Applying this invention is to replace the current therapeutic methods like the surgical operation of girdling the pulmonary artery.



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**(4/4) the detailed description:**

The present invention relates to the process of mounting inactive tissue upon a stent in a suitable volume to create the required stenosis inside the blood vessels, then positioning the made stent inside the required blood vessel via the usage of interventional catheter.

This tissue is installed having different structures and designs:-

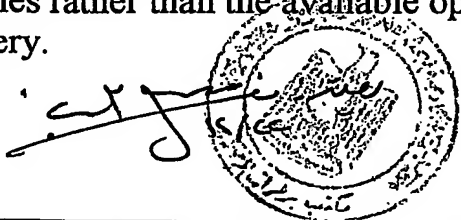
- 1- the design of a cycle inside the stent.
- 2- that of consecutive pores which differ in their diameter in such manner to can be removable in the future through, for instance, a balloon catheter,
- 3- the possibility of using a tissue having definite density being covered inside the balloon, for example, to be further expanded into various diameters using ballooned catheter to change the extent of the required stenosis.
- 4- A design resembling that of tight- natural valves.
- 5- the application of a tissue absorbable by the body where the degree of stenosis declines gradually by itself.
- 6- the usage of a tissue that can be expanded naturally inside the body wherein the stenosis increases gradually by the passage of time.

The used tissue can be of different natural sources ( human or animal) or artificial ones, nevertheless, the artificial synthetic tissues are easier to be modified and formed as the Gortics or Taflon.

n.b: all these designs are inflatable so as to control its diameter outwardly during applying the catheter and sometimes afterwards.

Mounting the relevant balloon stents via catheter is supposed to decline the death ratio, diseases and the costs of corresponding surgical operations.

This unique approach will be a navel revolution in the related medical applications, for decreasing the possibilities of occurring death will provoke new alternatives to handle simple and complicated cardiac injuries rather than the available options of canceling or delaying the surgery.



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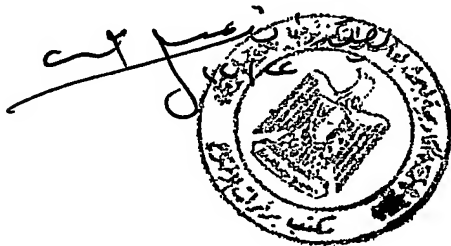


## PATENT OFFICE

Furthermore, the capability of measuring the difference of pressures in the place of lined balloon mounted stent using ultrasonic waves or catheter during and sometimes after mounting the stent. The navel balloon stent can be used as a terminal cure or a step of the patient's treatment.

### (4/5) The exploitation method

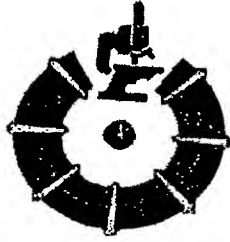
The present invention relates to outputting lined balloon stent having specific characteristics by one of the concerned companies producing the initial stents after applying the appropriate modification and preparation.



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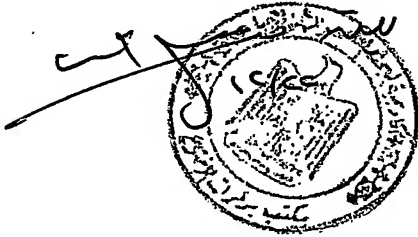
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**(5) The claims:**

\* The addition of lining whose diameter can be controllable during or after inserting the catheter upon the stent with different designs to control the blood flow (or other liquids) through the required vessel.



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